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Profile

a guide to military careers



November 1986



PROFILE's December issue features a story on the Army's Ranger training. It also includes articles on the Air Force defensive aerial gunners, the Navy's instrumentmen, the Marine Corps' presidential support unit and the Coast Guard's yeomen.



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PROFILE (USPS 457-490) is published monthly November through April by the High School News Service.

This magazine is designed to inform young people and guidance personnel about benefits, opportunities, privileges and programs of military service.

The Secretary of the Navy has determined that the publication of the periodical is necessary in the transaction of the public business required by law of this Department. Use of funds for printing this publication was approved by the Office of Management and Budget, Dec. 2, 1980.

Reproduction of articles and supporting photographs is authorized provided proper credit is given.

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Phone:
Commercial (804) 444-2828
AUTOVON 564-2828

Third class circulation paid at Norfolk, Va. and at an additional mailing office at Mechanicsburg, Pa.

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Vol. 30 No. 1

November 1986

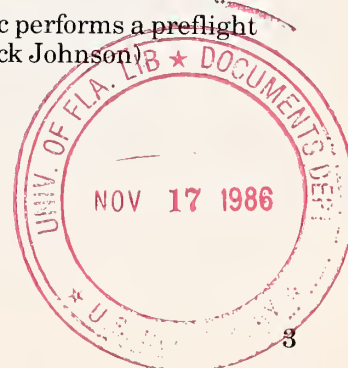
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About the covers

Front: Marine Corps Lance Cpl. Brian Watlington, left, and Cpl. Barry Bryant aim their Stinger missile at an approaching "enemy" aircraft during a training exercise. The forward area air defense (FAAD) gunners are assigned to the 2nd FAAD Battery, Marine Corps Air Station Cherry Point, N.C. (Photo by Linda Mitchell)

Back: A Navy aviation structural mechanic performs a preflight inspection on a Navy aircraft. (Photo by Rick Johnson)



Forward Area

story and photos
by Linda Mitchell

Suddenly, a call comes in over the command and control radio alerting two Marines in the field to be prepared. They are now on the lookout for an aircraft reportedly flying low and fast toward their area.

As the two Marines scan the skies, an aircraft comes into view. After positively identifying the aircraft as hostile, the Marine Corps forward area air defense (FAAD) gunners aim and fire their Stinger missile...

"The infra-red heat-seeking Stinger missile enables FAAD units to provide close-in air defense for any units engaged in independent front line operations," said Staff Sgt. James Bastien, a FAAD gunner and platoon sergeant in the 2nd FAAD Battery, Marine Corps Air Station Cherry Point, N.C. "Stingers also provide specialized protection of vital areas such as airfields, industrial areas, ammunition depots and fuel points."

The Stinger is a shoulder-fired, low altitude homing missile. Operating off a two-stage rocket, a launched Stinger will lock on an enemy jet's exhaust, track down the jet and destroy it.

"FAAD gunners visually locate the aircraft, or use coordinates transmitted over the Marine Corps Command and Control (MACC) communications network. MACC provides a vital link between the gunners, other ground forces and pilots of friendly aircraft.

"Visual sightings or coordinates help establish the identity of the aircraft," Bastien explained. "Friendly aircraft will return to base using designated flight corridors. However, hostile aircraft may stray into these corridors as well.



Lance Cpl. Brian Watlington, left and Cpl. Barry Bryant don battery packs and radio communication gear before deploying for a training exercise.

Defenders

"Besides using visual identification procedures, FAAD gunners lock on the target and confirm its status using the Stinger's identification friend or foe (IFF) subsystem. The IFF operates by transmitting a signal to the aircraft. The aircraft's IFF system returns a series of beeping tones. The length and number of beeps determines whether the aircraft is friendly or hostile," he added.

Visual identification takes priority, however. "This is important to the friendly aircraft's pilot, whose IFF system could be nonfunctional or possibly sending an incorrect signal. Gunners must be able to quickly and accurately identify all aircraft," Bastien emphasized.

"When an enemy aircraft has been identified," he continued, "the FAAD gunner sights the aircraft through the weapon's range ring. The range ring measures the distance between the aircraft and the gunner. The missile's heat seeker section emits a specific alarm tone to alert the gunner that the missile is locked on the target."

After it's fired, a FAAD gunner has no further control over the missile. "One impressive feature of this system is that it's designed to home in on the original heat source. Even when enemy fighters attempt to elude the missile using a superimposed heat source, such as flares, the missile tracks its original target," Bastien said.

A large portion of the four-week school at the U.S. Air Defense School, Fort Bliss, Texas, emphasizes the visual study of American, NATO and Soviet Bloc aircraft. "The school utilizes a dome-shaped, moving target simulator. The classroom has a huge screen which shows life-size aircraft as they would appear in the sky. Using training Stingers, students track the moving targets, which emit an infra-red source for

them to follow," Bastien said.

In addition to learning characteristics and weapon system functions during training, students also fire one live missile for familiarization.

Training remains continuous after gunners arrive at their new duty stations. "FAAD personnel qualify annually, using a reusable Stinger launch simulator, which fires a dummy missile (a lead sleeve with only the ejection

motor). The simulator provides the gunner with all aspects of the real weapon from sighting to firing, including the feel of a missile leaving the launch tube. The training missile only travels about 300 meters.

"Gunner continually maintain their proficiency through weekly training, consisting of aircraft identification and map indoctrination," Bastien said. "Yearly field exercises and overseas operations



Cpl. Barry Bryant, right, relays coordinates transmitted over the command and control radio to Lance Cpl. Brian Watlington during a field training exercise.

Defenders

also help FAAD gunners improve their skills.

"Past operations have taken gunners to Beirut, Lebanon; the Persian Gulf; on annual training in Norway and Denmark; and commitments in the Caribbean and the Mediterranean.

"They are becoming more involved in special military operations," Bastien added. "They learn rappelling, mountain warfare, skiing and other combat skills. They also participate in reconnaissance, ground and air defense operations."

Exercises and operations account for most of the mobility of the FAAD gunners and the Stinger system. "Aside from Cherry Point, our permanent assignments include 1st FAAD on Okinawa, Japan, and 3rd FAAD at Camp Pendleton, Calif.," Bastien explained. "We don't transfer much on permanent assignments, but we are constantly on the move, training with different battalions."

"We must be ready constantly for that MACC call, warning us to be on the lookout for approaching unidentified aircraft," Bastien said.

...The two alert Marines in the field watched as their missile systematically tracked and destroyed the enemy target, and knew they were well-trained to accomplish their air defense mission.

Cpl. Barry Bryant adjusts the Stinger's firing coordinates as Lance Cpl. Brian Watlington aims the missile at "enemy" aircraft during field training.



Cpl. Barry Bryant, right, assists Lance Cpl. Brian Watlington by visually identifying an approaching aircraft during field training.



Registration is law

Men, aged 18 to 25, including active-duty, National Guard and Reserve members, must register with the Selective Service. Failure to do so is a felony punishable by a fine of up to \$250,000 and/or up to five years' imprisonment.

Under a recent law signed by President Reagan, men who fail to register will forfeit their right to certain federal college and vocational education student loans and job training benefits under the Job Training Partnership Act. They also forfeit the opportunity for federal employment. A man will not be protected even if he has served in the military.

Registration is a simple process. A man goes to any post office, picks up the registration form and enters the required information. Name, address, date of birth, social security number and telephone number is all that's required. The completed form is checked by a postal representative. The Selective Service must also be notified of any changes, such as change in address.

Within about six weeks, those who register receive an acknowledgement letter. This is evidence of registering. Part of the letter is a wallet-size cutout with personal information about the registrant. This information can be carried in the wallet for proof of registration, but there's no requirement to do so.

Air Force plans "software" training

The Air Force is planning a revolutionary training effort aimed at educating its members to the everchanging world of computer software. Called Project Bold Stroke, the program will make Air Force personnel aware of the fact that they must continue to stay abreast of the more complex software programs, which they will be required to use.

Presently, nearly every Air Force system—from the B-1 Bomber to the base supply system—operates on computers. Software is the coded instruction that tells a computer how to operate. As the systems become more sophisticated, the software program instructions also become more complex.

The Air Force estimates that 10 years ago about 20 percent of the cost of any new computer system went for software. In a few years, officials predict, nearly 80 percent of a system's cost will be for its software.

Overseas registration is handled by the 245 U.S. embassies and the Department of Defense Dependent School system. The embassies can delegate registration authority to military installations.

Monument to Gander victims

A lasting memorial honoring the 248 101st Airborne soldiers who died in December 1985 in a plane crash in Gander, Newfoundland, and members of the division who died before them was presented to the unit following its commissioning by a Kentucky newspaper publisher. The 101st Airborne Division is stationed at Fort Campbell, Ky.

The monument was financed by Robert C. Carter, publisher of the Kentucky New Era. Artist Steve Shields created the 7 1/2-foot statue, which includes a life-sized eagle of welded metals, a fractured globe and a slate tablet on a solid walnut stand.

Affixed to the stand are the words, "In memory of those who died attempting to heal a broken world."

The sculpture was formally unveiled at a meeting of the Tennessee-Kentucky Chapter of the Association of the U.S. Army.



Parachute riggers pack 'em up

by Karen Murdock

A soldier with a parachute strapped to his back stands ready to exit the aircraft. The wind whistles past the open door, making it nearly impossible to hear. On command, he hooks up his static line then jumps out into nothing. The soldier holds his breath and waits for the familiar tug of the static

line automatically opening his chute.

Making sure the parachute opens correctly is the job of the Army's parachute riggers. "Since the riggers deal with people's lives, their work must be precise," said Sgt. Bob Miller, assistant operations sergeant for the 612th Quartermaster Company at Fort Bragg, N.C. "A rigger completes seven separate safety checks as he or she

packs each parachute. Each of these checks ensures the packing is done correctly.

"Someone who doesn't know how to pack chutes may think the riggers are just stuffing material into a bag," Miller explained. "But, in addition to the seven rigger checks, another rigger stands at the end of each packing table to ensure the work is done correctly."



An airborne troop lands safely because of the diligent work of a parachute rigger. (US Army photo)

Parachute riggers master the basics of parachute packing at a three-month school at Fort Lee, Va. Students learn to pack the chutes during the first phase and after becoming proficient packers, begin performing parachute maintenance and repair. During the third phase, students practice rigging heavy equipment for air deployment.

"Each student is required to jump with a chute they've packed," Miller explained. "Riggers are airborne soldiers. They must be jump-qualified prior to reporting to rigger school.

"Riggers have to be quality soldiers. They complete three schools prior to being assigned to their first unit. They must attend basic training, followed by three weeks of airborne training at Fort Benning, Ga., and three months of rigger school," Miller said. "After graduation, the Army issues them a military license to pack parachutes."

When airborne units return used parachutes to the 612th for repacking, the riggers hang them in the 290-foot, climate controlled "shake out" tower, where the chutes are dried and shaken to remove any debris from the landing zone. When the parachutes are dry, the packers check for broken lines or rips in the material and remove any tangles before repacking the chutes. "In school, if a student can pack a chute in under an hour, he or she is considered proficient. My riggers pack a parachute in 12 minutes. Riggers gain speed as they gain experience," Miller said.

The riggers work on the two basic personnel parachutes in the Army's inventory—the MC1-1 and the T-10B. "These are parabolic or round parachutes. Our monthly packing goal stands at 2,700 chutes," Miller explained. "The MC1-1 is the most maneuverable chute the Army has, aside from the parachutes used for special operations such as the High Altitude, Low Opening (HALO) parachutes and the square chutes the Army's parachute team, the Golden Knights, use. Riggers who work with these special operations parachutes receive additional training."

The 612th Quartermaster Company has four sections—administration, packing, the warehouse (where the packed parachutes are issued to units requesting them) and the heavy drop section, where equipment is rigged for air drops. "Riggers have a varied job. In addition to packing and performing maintenance on parachutes, riggers also build boxes and platforms to support equipment being air dropped. No matter what type of equipment needs to be dropped, Army riggers have the experience and knowledge to get the job done. Our riggers can air drop anything anywhere," Miller said.

Riggers must also stay proficient in the basic soldiering skills of passing physical training tests; qualifying with the M16A1 rifle; and taking the annual skills qualification tests. In addition, riggers partici-



A parachute rigger pulls the parachute lines tight as he stows suspension lines on a personnel chute. The lines have been arranged and stowed in the reverse order they will come out when the chute is deployed. (Photo by Karen Murdock)

pate in field training exercises. "Last year, the 612th's riggers performed temporary duty for mission support in Egypt, Alaska, Greenland, Jordan, Canada, the Sinai, Honduras and Grenada," Miller said.

"Because the job is so varied, it never gets boring. Plus, every time a rigger packs a parachute, there's the possibility that he or she may be using it to jump, so special care is taken with each job. When a person is standing in an aircraft ready to jump out, the last thing they need to worry about is whether or not their parachute is going to function correctly," Miller concluded. "It's the parachute rigger's job to make sure it does."

Making sure the parachutes open up correctly is the job of the Army's parachute riggers.

tidbits and technology

Reservists and the new G.I. Bill

Reservists will be eligible to receive up to \$140 per month in college benefits under the new G.I. Bill that went into effect in July 1985.

All current reservists and those entering the reserve between July 1985 and June 1988 are eligible if they enlist, reenlist or extend in the Reserves for six years, receive a high school diploma or equivalent prior to completing initial active duty for training; do not have a bachelor's degree or higher; and complete 180 days of reserve service.

Financial assistance can include up to \$140 per month for 35 months of full-time college enrollment, \$105 for 48 months of 3/4 time college enrollment or \$70 for 72 months of half-time college enrollment. No payments will be made to participants for less than half-time pursuit of a program of education.

Participation in the G.I. Bill program doesn't prohibit reservists from receiving enlistment or reenlistment bonuses. Prospective reservists who enlisted before June 30, 1985 are eligible for the G.I. Bill if they extended their enlistment after July 1, 1985.

Army develops pocket-size net

A new "pocket-size" camouflage net, developed by the Army Troop Support Command's Belvoir Research and Development Center, has proved successful in recent Army field training exercises.

The individual concealment cover is a solid-colored, five- by seven-foot net made of coated nylon. Each net weighs less than a pound and can be folded to fit in the pocket of a soldier's uniform. One net can be joined together with others to form a larger covering. In the field, the net can be used to conceal soldiers, fighting positions and weapons emplacements.

Bianchi M-12 hip holster chosen by DOD

Bianchi International has been awarded a U.S. government contract to produce the new official U.S. armed forces M-12 standard holster for the military's newly adopted 9mm handgun.

The contract award, which initially provides for the production of 170,000 holsters over the next three years, culminates a four-year, privately funded

development program at Bianchi. The adoption of the M-12 was made possible when the U.S. government announced plans to replace the M1911, .45-caliber automatic pistol with the Beretta 92SB-F 9mm pistol as the standard issue military handgun. The M-12 is specially tailored to accommodate the Beretta 92SB-F.

The M-12 is an ambidextrous hip holster featuring a completely modular design, allowing the holster to be worn on a wide or narrow belt; with or without the flap; cross- or side-draw; or on a belt or shoulder. Unlike the M1916 holster it replaces, the M-12 is made of ballistic nylon fabric outer facing over a non-absorbent, closed-cell polyfoam core. These modern materials provide padded protection for the weapon, are silent in use (they don't "creak" like leather), are abrasion resistant and are up to 20 percent lighter than conventional materials.

Air Force fact on UFOs

The Air Force investigation of Unidentified Flying Objects (UFOs) began in 1948 and was known as Project Sign. Later the name was changed to Project Grudge and in 1953, it became Project Blue Book.

Between 1948 and 1969, the Air Force investigated 12,618 reported sightings. Of these sightings, 11,917 were found to have been caused by material objects (balloons, satellites and aircraft), immaterial objects (lightening, reflections and other natural phenomena), astronomical objects (stars, planets, the sun and moon), weather conditions and hoaxes. Only 701 reported sightings remain unexplained.

The secretary of the Air Force announced the termination of Project Blue Book on Dec. 17, 1969.

Army works on new artillery quieting system

Diminishing noise from demolition and artillery fire is the goal of researchers at the U.S. Army Corps of Engineers.

A new artillery quieting system, being developed by the engineers and the Combat Systems Test Activity, will be built at Aberdeen Proving Ground, Md. Researchers are investigating the use of water-based foams to quiet artillery weapons systems. The use of foam will allow for the manufacturing of smaller, lighter mufflers to reduce noise. The new mufflers will also be easier to move than the ones currently in use. The development of the lighter mufflers is being studied to decrease noise levels in neighboring civilian communities during exercises.



Petty Officer Wallace operates the Command Display and Control (COMDAC) system aboard the Tampa. COMDAC is a radar system used for navigating.

Quartermasters

story and photos
by Rick Johnson

Skillful navigation and keeping a watchful eye for obstacles prevents many disasters at sea. An efficient exchange of signals between ships and shore stations also plays a vital role in maritime safety.

The Coast Guard quartermaster (QM), one of the oldest seagoing professions, provides a valuable service in keeping the sea lanes safe. QMs pilot their vessels by quickly and accurately reading and interpreting navigational charts and signals.

"Quartermasters chart the vessel's direction of travel, then compute the speed required to reach a specific destination by a specific time," said Petty Officer First Class Mark Wallace, one of the Coast Guard cutter Tampa's quartermasters. "Basically, QMs are responsible for getting their vessel from point A to point B without running aground."

While at sea, QMs usually stand two watches a day plotting the vessel's position. "The larger Coast Guard cutters, such as Tampa, use the COMDAC (Command Display and Control), a radar system simi-

lar to a large computer," Wallace explained. "The COMDAC is capable of picking up about 100 contacts at a time. After the COMDAC processes the radar sightings, it displays a chart on a monitor screen. QMs then use the displayed radar sightings to plot or correct their course."

"The most common method of navigating on inland or coastal waters is plotting known objects on a navigational chart (map)," he continued. "On the open seas, quartermasters use rhythmic radio signals from one of three types of equipment: LORAN (Long Range Aids to Navigation), Omega or Satellite Navigation devices. The electronic signals, or pulses, which are emitted from two different stations, are viewed on a television type screen. Where the

pulses meet is the vessel's location."

Quartermasters also practice celestial navigation, the oldest known method of guiding ships. "Celestial navigation is accomplished using a sextant and mathematical calculations," Wallace said. "Quartermasters dial coordinates and degrees into a sextant, shoot (look at) the sun or a star, then use the sun's or star's position to determine the ship's location. Prior to dialing the information into the sextant, quartermasters make several calculations using established formulas."

In addition to their navigation duties, QMs transmit and receive signals by Morse code (flashing lights), semaphore (two hand-held flags), and flag hoists (a set of 68 flags, each with a special meaning). Other responsibilities include planning and plotting search and rescue mission patterns. "Quartermasters really show what they're made of when they're at sea," Wallace explained. "That's where their training and knowledge comes together."

QMs master their skills by either striker training (on-the-job) or by attending the QM "A" school at the U.S. Reserve Training Center, Yorktown, Va. The school teaches basic navigation and visual communication during the 12-week period, including two weeks of hands-on experience at sea.

"Quartermasters are always in the command's spotlight. We work for the navigator, who answers to the captain," Wallace concluded. "QMs keep the sea lanes safe."



A QM plots the cutter's position on a chart by using calculations and mathematic formulas.



Airways body shop

story and photos

by Rick Johnson

Navy aircraft fly hundreds of missions each day and, like automobiles, they must be serviced regularly to remain safe and operational.

One aspect of ensuring a safe flight is the maintenance and repair of the aircraft's metal structure, movable parts and control systems. Men and women in the Navy's aviation structural mechanics rate are responsible for performing these vital functions.

"We take care of the aircraft's airframe (body)," said Petty Officer 2nd Class Michael Hollifield, a Navy aviation structural mechanic, structures, (AMS) with Fighter Squadron 143, Naval Air Station Oceana, Va. "We repair and replace landing gear, flight controls and tires and perform airframe metal work," he explained.

"AMSs check the airframe for various types of corrosion," added Hollifield. "Surface (rust) and galvanic (a white powdery substance caused by two different kinds of metal rubbing together) corruptions are the easiest to repair. The AMS uses a drill with a medium coarse scouring pad to grind the corrosion off."

After identifying and repairing the corrosion, AMSs are ready for the next phase of repair. "Using blueprints as guidelines," explained Chief Petty Officer Joseph



Petty Officer 3rd Class Gordon West spreads non-skid paint on an F-14 while Petty Officer 2nd Class Brad Koenigse stands by. Both are AMSs assigned to Fighter Squadron 143.

Pryal, an instructor at AMS school in Memphis, Tenn., "they design the desired replacement part on metal sheets. They then cut, form and drill the metal part."

These Navy mechanics also remove and install rivets, make structural repairs inside the aircraft and, if needed, make external repairs to damaged metal.

"In addition, AMSs perform line maintenance on the aircraft, or what I call the 'gas station attendant' services," he added. "We service the aircraft by changing the tires and checking the oil, fluids and fuel levels. We perform various other inspections, including a daily pre-flight inspection."

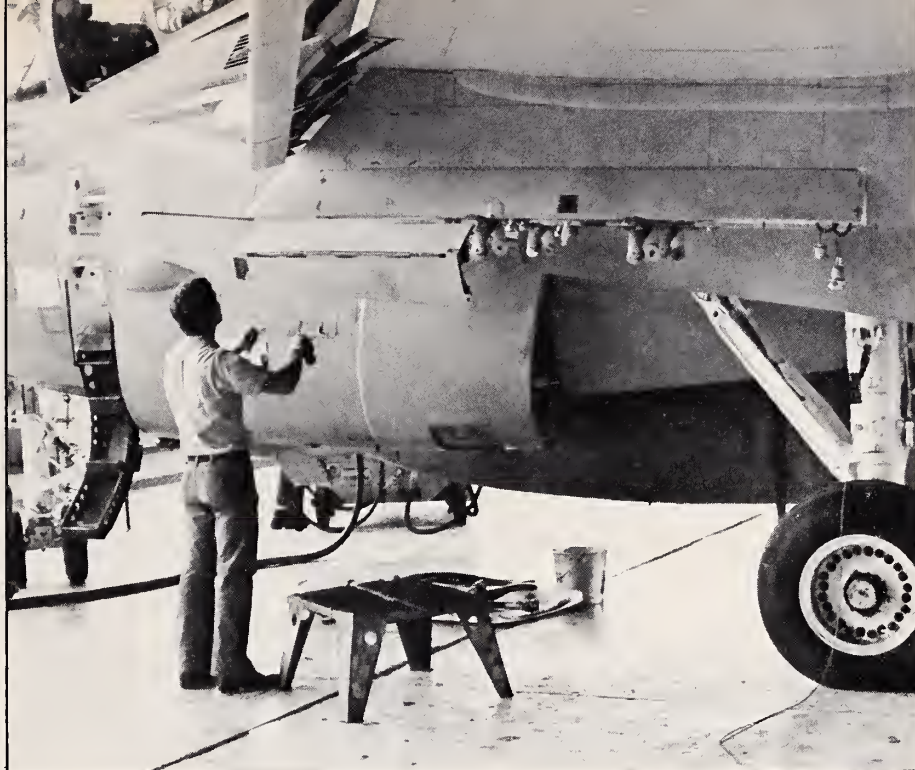
AMSs receive apprenticeship training by attending a nine-week course at Naval Air Station Memphis. "The school teaches students the basics of metalsmithing," commented Pryal, "and general maintenance of an aircraft's airframe and flight control systems. The course is a combination of classroom study and hands-on experience."

After completing apprenticeship training, newly rated AMSs are assigned to familiarization schools (similar to training squadrons). There, they gain additional experience on specific types of aircraft before reporting to either a land-based squadron or air wing, or an aircraft carrier.

With extensive training and experience under their belts, AMSs become part of the team that ensures safe and sound Navy aircraft which fly "as advertised."



...int on the walkway off the tail of
...apes the walkway off on the other
...t Naval Air Station Oceana, Va.



Above: Petty Officer Koenigseker inspects an F-14 for body damage and corrosion. Below: Airman Rick Dobson uses a flat brush to grind corrosion off the aircraft.



Petty Officer 1st Class Terry Hubbard takes a fuel sample from an F-14.



Name of the game: **PRECISION**

story and photos
by Linda Mitchell

Successful race car drivers such as Richard Petty and Cale Yarborough have attributed their success, in part, to their pit crews and the equipment used to maintain their racing machines. The drivers agree that precision maintenance and driving is the name of the racing game.

In the Air Force, precision is also the name of the game when it pertains to flying its aircraft or maintaining the aircraft's systems. Precision measurement

equipment laboratory (PMEL) specialists play an important part in the Air Force's finely tuned maintenance operation.

"PMEL specialists calibrate and repair the equipment used by base maintenance units," said Master Sgt. Ron Boaze, superintendent of the Bolling Air Force Base, Washington, D.C., PMEL.

"To perform this calibration work, we use diagnostic equipment called base reference standards, which vary in size and operate much like auto repair shop diagnostic machines," explained Tech. Sgt. Ron Zeman, a section

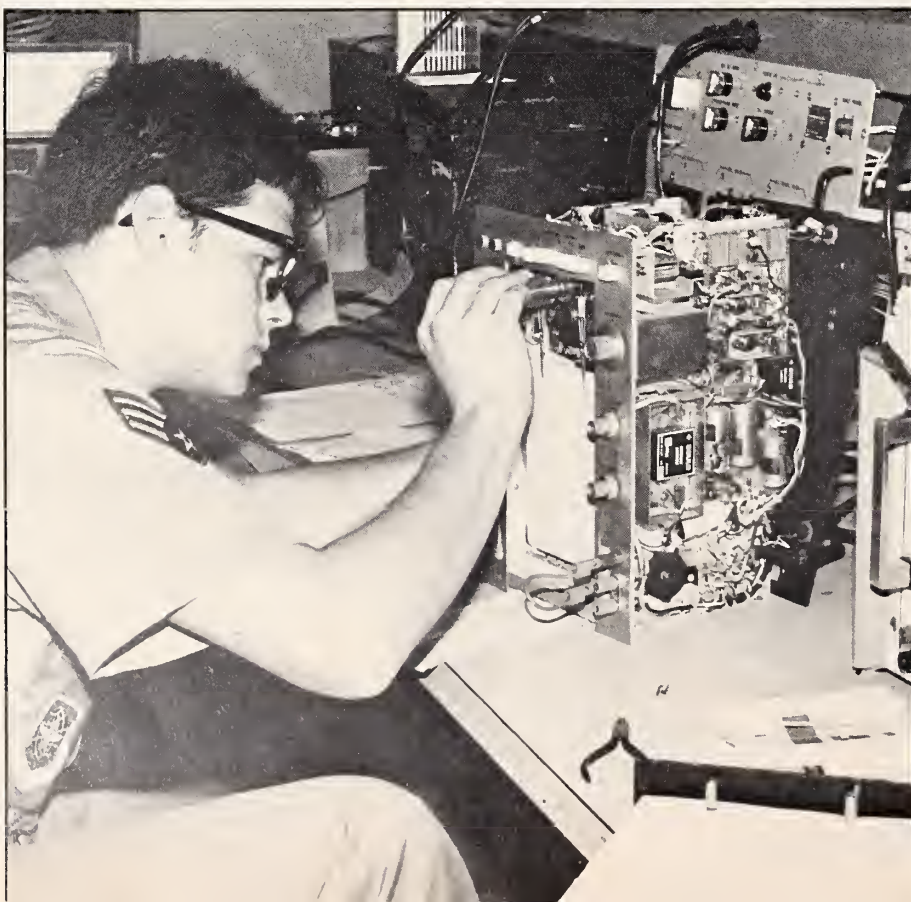
supervisor in the Bolling lab. "All our standards operate according to accuracy (value) criteria established by the National Bureau of Standards (NBS) in Colorado."

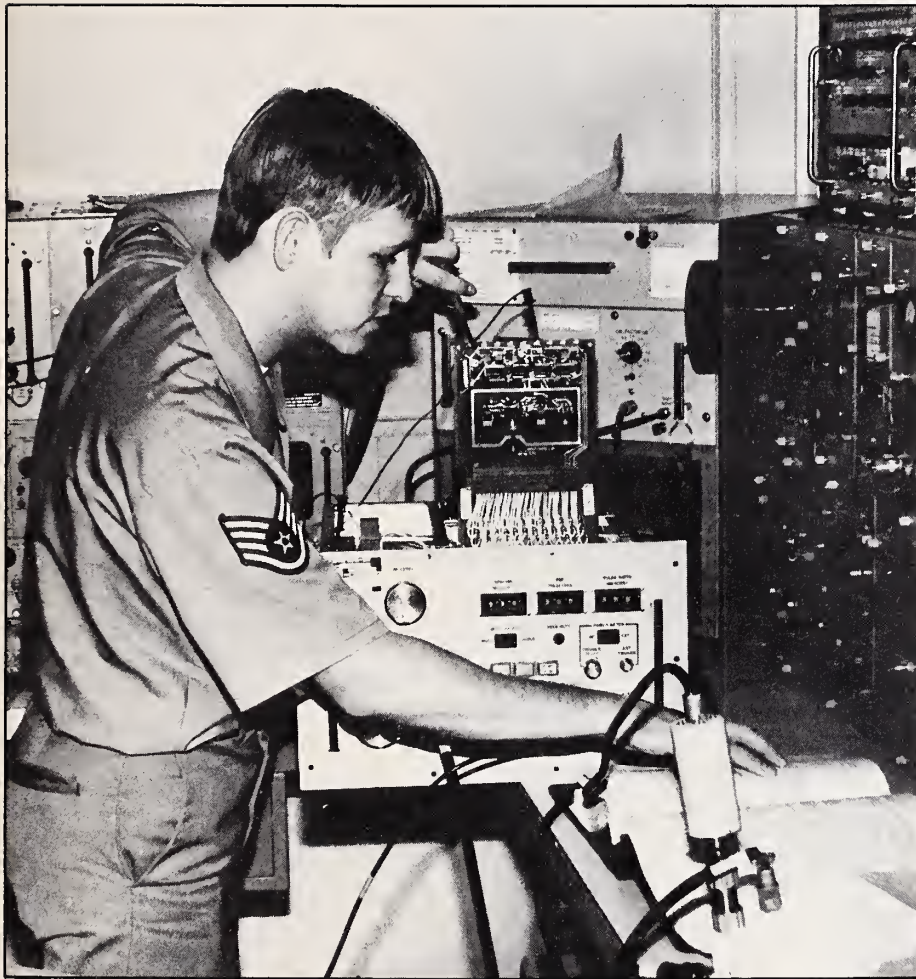
"An automobile diagnostic machine indicates, by a printed readout, that a car's ignition system, for example, isn't performing within acceptable measurements. A diagnostic machine also indicates to the mechanic what must be done to correct the problem. After repairs have been made, the mechanic can use the same machine to check his work. That's basically how our standard equipment operates."

"For example," Zeman said, "we calibrate the general purpose digital and analog multimeters used by maintenance personnel to check aircraft navigational equipment."

"When we receive one of these multimeters, we connect it to our meter calibration standard to

Sgt. Glenn Jacobson repairs and aligns a brush voltage recorder used to monitor tracking devices.





Staff Sgt. Glenn Hawkins repairs an ANVSM 397 radio frequency power source.

measure its alternating (AC) and direct (DC) current, voltage and resistance," he continued. "Calibration values set by the NBS for voltage, resistance and current appear on the standard's television-like screen. The standard then applies these values to the multimeter, just as an automotive diagnostic machine does to a car.

"If our meter standard values and those of the multimeter agree," Zeman added, "we certify that the multimeter meets NBS and PMEL accuracy requirements. If the values don't match, we make adjustments and troubleshoot the equipment, repairing or replacing any faulty transistor tubes or other components."

"We also run accuracy comparisons on frequency counters used to make precise frequency and time measurements in radio equipment," said Tech. Sgt. Don Jacobson, another section supervisor.

"Other PMEL specialists," he continued, "repair oscilloscopes, which are similar to computer

video monitors. Electrical wave forms, which appear on the oscilloscope's fluorescent screen, indicate to maintenance people if the equipment's signal needs adjusting. We calibrate and certify these wave-form oscilloscopes meet NBS accuracy.

"In the electronics branch, PMEL technicians repair and adjust signal generators which produce low- and high-frequency wave-form signals. Communications maintenance people use these signal generators to troubleshoot equipment such as radios and radar," he explained.

Lab technicians also test and repair surveying and radiation detection (radiac) equipment and geiger counters.

"Being a PMEL technician requires comprehensive training," said Boaze, "and the eight-month course at Lowry Air Force Base, Colo., provides just that."

During the course, students learn electronic fundamentals, general math required for neces-

sary formulas and troubleshooting techniques. They also receive instruction on AC and DC circuits and vacuum tubes, followed by hands-on training using the school's training standard equipment.

"By watching video monitors on the mechanical trainer equipment, students learn step-by-step procedures in repair and calibration," Boaze said. "After studying each piece of equipment and its functions, students disassemble, test, repair and reassemble the equipment."

Following graduation from the basic school and initial on-the-job training, PMEL specialists have the opportunity to attend courses in specialized subjects such as microwave and advanced electronics.

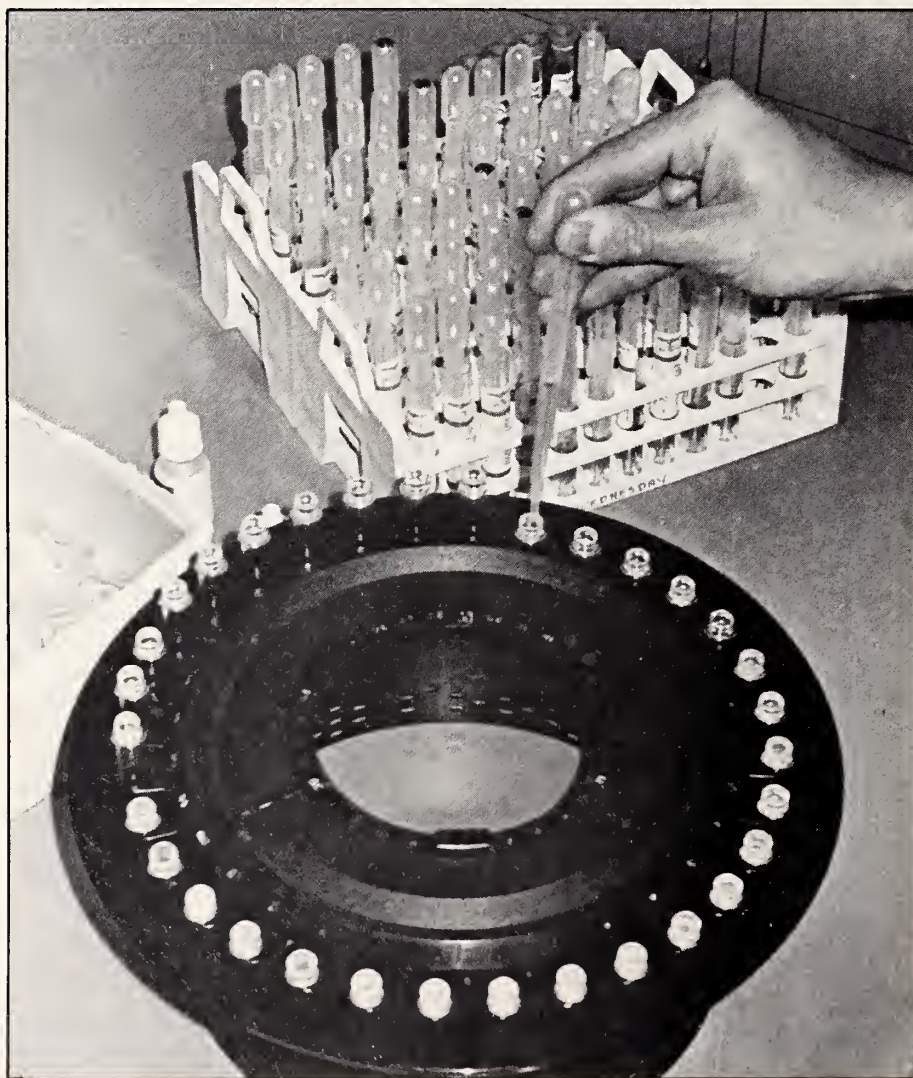
"Civilian test equipment manufacturers also offer courses on their new systems," Boaze said. "This isn't a static career field. We must constantly stay on our toes."

PMEL specialists, like race car pit crews, consistently lend new meaning to the word "precision." Neither can be lax in their performance. Mistakes made by pit crews, or drivers' miscalculations, can result in serious injury or death. Precision measurements done by PMEL specialists always guarantee the highest standards of safety and protection to aircraft equipment.

"The Air Force's maintenance 'game' begins and ends with precision," Boaze emphasized.

Test tube chemists

story and photos
by Linda Mitchell



A medical lab technician places patients' specimens in the test tubes of a chemical analyzer, which separates enzymes and other elements in the specimens for in depth analysis.

The clean, white laboratory is filled with microscopes, machines and test tube trays. As machines hum quietly, medical laboratory technicians in crisp, sanitary uniforms use this equipment to perform tests on blood samples and fluid specimens collected from patients.

Doctors will use the results of these tests to prescribe treatment for their patients, while researchers may use additional findings to make medical breakthroughs in the search for new cures.

This scene is a daily occurrence for civilian hospitals and research centers worldwide. It also is seen in military hospitals in the United States and abroad, as enlisted medical lab technicians make daily contributions to medical science and patient care.

"Enlisted medical lab technicians normally don't see patients, except in the central processing area," said Sgt. Carolyn Fields, a medical laboratory technician at Walter Reed U.S. Army Medical Center, Washington, D.C. "In central processing, which is our patient service area, lab technicians draw blood, urine and other specimens, then forward the samples to lab sections for analysis."

"Most laboratories have several sections. Two of these sections, hematology and the blood bank, function hand-in-hand," said Tech.

Sgt. Kenneth L. Williams, a medical lab technician at Malcolm Grow U.S. Air Force Medical Center, Andrews Air Force Base, Md.

"Hematology lab technicians process whole blood for white and red blood cell counts, called complete blood counts (CBCs). Any abnormalities the lab technicians find usually indicate the patient has an infection or possible disease," he said.

"Hematology lab technicians also study blood coagulation procedures," Fields said. "These studies monitor blood thinning procedures essential in treating heart patients."

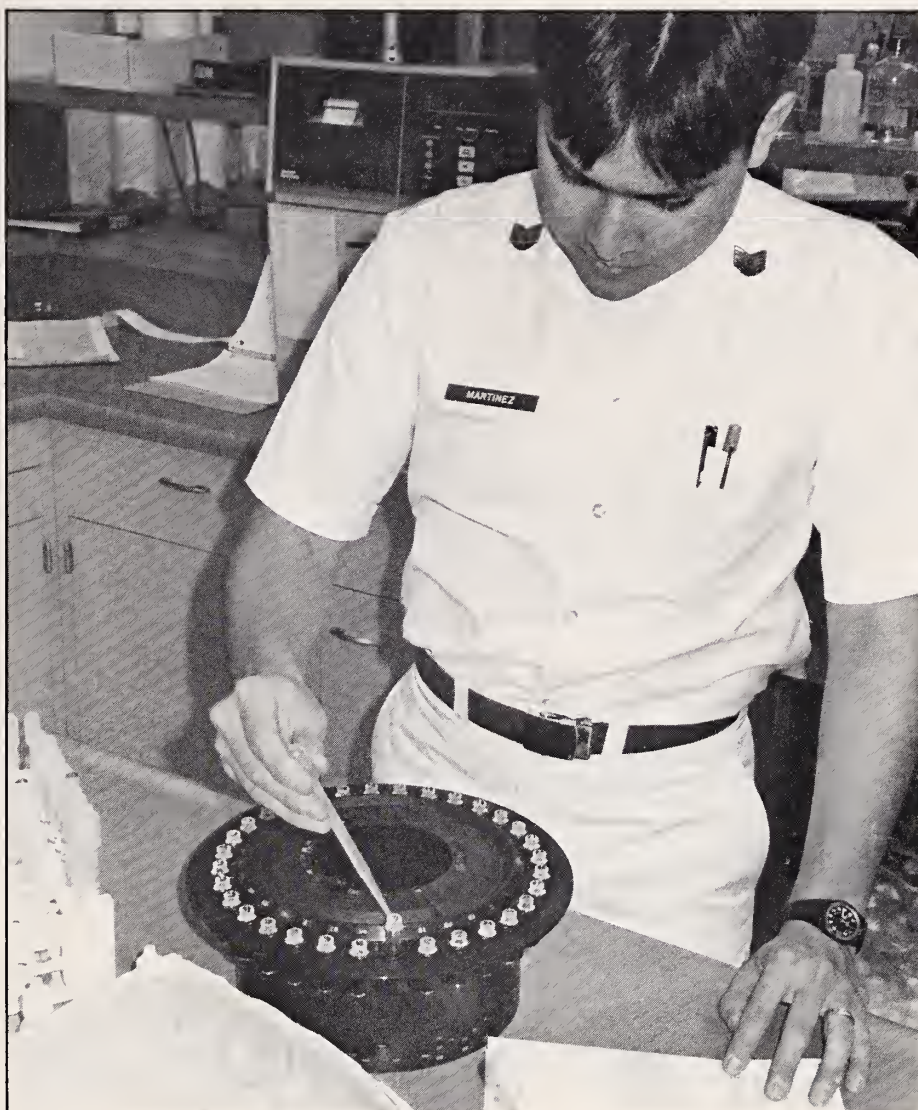
Technicians in both the hematology and blood bank sections identify, classify and store each donated blood unit prior to it being used in a surgical transfusion.

"Lab technicians evaluate a variety of tests using patients' blood, saliva, urine and other body fluids," said Sgt. Naomi Plinkert, a medical lab technician at Malcolm Grow. "Although the tests often seem similar, they are performed for different reasons. For example, urinalysis lab technicians examine urine for bacteria and disease strains, drug and alcohol abuse, or pregnancy. The first signs of kidney failure can appear during urinalysis inspections.

"Our investigative research also uncovers such illnesses as AIDS, diabetes, hepatitis, strep throat, or any childhood illnesses like chicken pox, measles and mumps," Plinkert said.

"Lab technicians check throat cultures for bacterial contamination, and perform a microbiology test to analyse fungi for tuberculosis," she added. "Working with doctors, medical lab technicians perform experiments on cultures and specimens taken from patients to discover which antibiotics will cure specific infections."

"However, if a patient dies, histopathology technicians are responsible for assisting the pathologist," Williams said. "Histopathology technicians prepare microscope slides from body tissue for the pathologist to analyse during the autopsy. He then can diag-



Tech. Sgt. Eddie Martinez, an Air Force medical lab technician, puts specimens in the test tubes of a chemical analyzer to check for liver enzymes and blood glucose levels.

nose the cause of death."

Air Force medical lab technicians attend a five-month school at Sheppard Air Force Base, Wichita Falls, Texas, for technical training. Army, Navy and Coast Guard people attend a 15-week course at Fort Sam Houston, San Antonio, Texas. Marine Corps personnel rely on the Navy for all their health services.

To put this academic knowledge into practical use, Air Force personnel receive an additional nine-month Phase II course at one of several Air Force training medical centers, such as Malcolm Grow. Army, Navy and Coast Guard personnel report to initial duty stations for further training. "Strictly

supervised experience on actual specimens and additional study comprise Phase II and on-the-job training," Fields said.

In-school and in-hospital experience includes use of specialized equipment—microscopes and slides, auto chemical analysers, flame photometers for use in monitoring sodium and potassium levels in the specimens, and hematracks which perform differential counts on white blood cells.

Armed with specialized knowledge, and prompted by the daily life and death struggle against disease, medical laboratory technicians are making important contributions to the world of medical research and development.

'Not too short!!!'

story and photos
by Rick Johnson

The military places continuous emphasis on the appearance of its service members. Uniforms must be clean, pressed and sharp looking. Shoes have to be polished and hair must be cut according to standards set by military regulations.

The Navy ensures its sailors re-

ceive quality hair-care service by providing barber shops on bases around the world. But, what about those men and women on board ships who are out to sea for months at a time? Where do they go when their hair becomes too long?

On board ship and at shore installations, it's the Navy ship's servicemen (SH) who provide

sailors with regulation haircuts.

"SHs receive training and experience in trimming, cutting and styling hair to meet military standards for men and women by attending the four-week barber course at either San Diego or Norfolk, Va.," said Chief Petty Officer Dave Swanson, an instructor at the Norfolk barber school.

"Students are taught to look for and identify diseases associated with the head, face and hands," Swanson explained. "Customers showing signs of scalp disease must be referred to the appropriate medical department for necessary treatment. Therefore, to keep from transferring scalp diseases to healthy customers, sanitation standards are high. Students learn to change razor blades and wash their hands before and after each haircut."

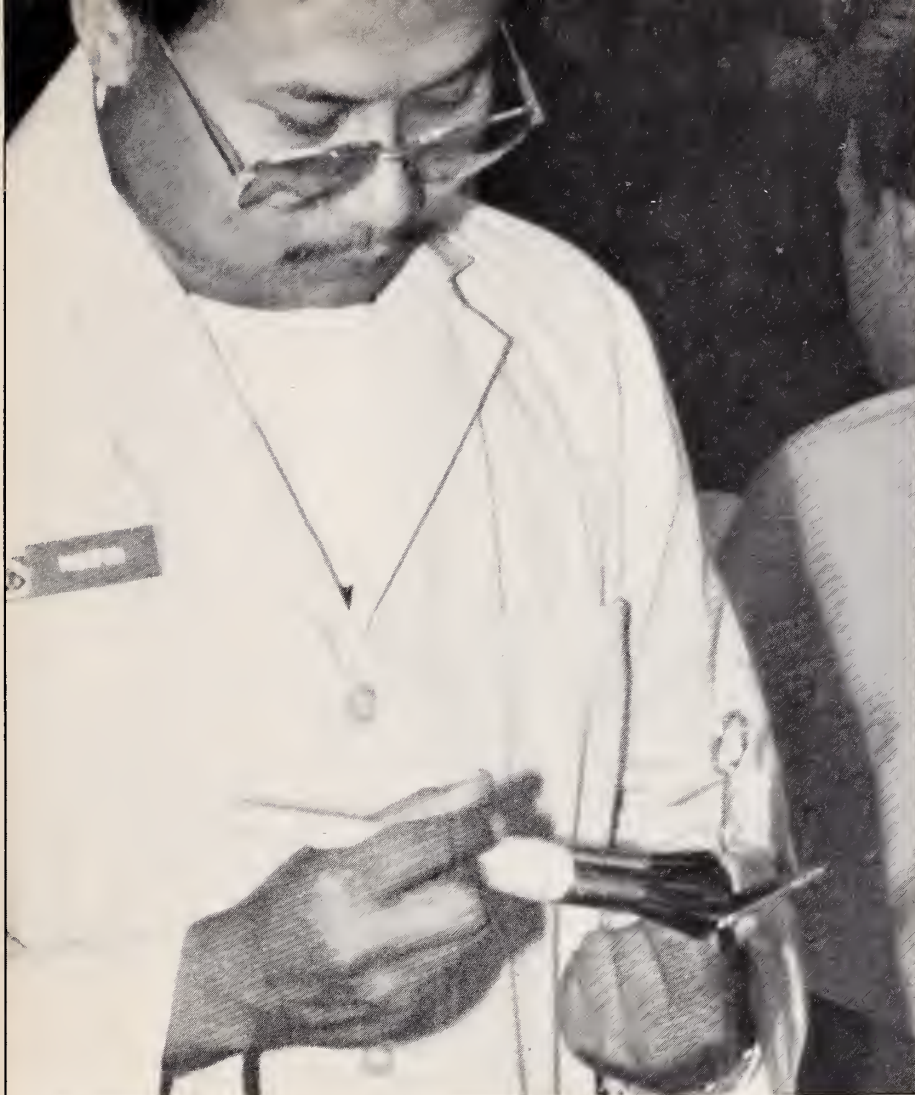
After learning basic barbering fundamentals in the classroom, students gain experience by cutting men's and women's hair in the school's barber shops.

Teaching students how to cut women's hair was only recently initiated. "Not many female sailors presently use Navy barbers," Swanson said. "But when they do come into the school for haircuts, instructors demonstrate how to properly cut and style the hair to please the woman and, at the same time, meet regulations." In addition to cutting female sailors' hair, most shore installation barber shops are available to family members. SHs can provide family members with the current styling techniques they would receive from a local barber shop.

After completing the barber course, the Navy's ship's servicemen can serve either on board ships or at shore installations around the world.

"There is a difference between





Petty Officer Manipon, an instructor at the barber school, cleans his tools after giving a customer a haircut. Barbers must maintain high sanitation standards on the job to keep from transferring scalp diseases.

being stationed on a ship as opposed to a shore installation," explained Senior Chief Petty Officer Carlos Combs, senior ship's serviceman on board the aircraft carrier Nimitz. "Barbers on board ships have to learn to keep their balance. When we hit rough seas, we don't cut hair. The results could be disastrous. However, calm seas don't present any problem."

"Cutting and styling hair, when performed by trained personnel, is an art," Swanson concluded. "Our job is necessary in order to maintain the high standards of military grooming and appearance."



With steady hands, a barber school student trims the back of a customer's neck. Barbers must have steady hands and good balance, especially when cutting hair aboard ships.



Kaiserslautern, viewed from the top of the town's tallest building — the city hall, is home to more than 70,000 Americans.

Kaiserslautern

This 'typical' German city offers visitors plenty

by Karen Murdock

Kaiserslautern is a "typical German city"—modern and progressive with an international flair, a long history and old-world charm.

Located in central western Germany, Kaiserslautern has a population of 108,000 including members of 70 nations living within its boundaries.

Service members and their families living in Kaiserslautern are part of the largest American community outside the continental United States with a population numbering approximately 70,000.

The city, located just below the 50 degree north latitude, is a bit further north than the U.S.-Canadian border. Rain, fog and drizzle are common all year. Though temperate, the summers tend to be cooler and shorter than what most Americans are accustomed to.

The city's roots can be traced to early settlements dating back to 800 B.C. Kaiserslautern, or K-Town, as

it's known to its American residents, earned its name as the favorite fishing retreat of Emperor (Kaiser) Frederick I, or Barbarossa (Red Beard) who ruled from 1155 to 1190.

The U.S. military also has a long history in Kaiserslautern. Ramstein Air Base, located seven miles from Kaiserslautern, was designed by the French and built by the Germans for the Americans in 1953. In 1957, Ramstein became the largest NATO-controlled air base on the continent. In 1972, Headquarters, U.S. Air Forces in Europe (USAFE) made its home at Ramstein. Four years later, U.S. Army units from Kaiserslautern transferred to Wiesbaden and U.S. Air Force units went to Ramstein Air Base. The area became known as the Kaiserslautern Military Community, the only Air Force-directed military community in the world.

Soldiers are assigned to Kaiserslautern at the 21st Support Command, the largest support organiza-

tion in the U.S. Army Europe (USAREUR), the 2nd General Hospital, the largest U.S. forces hospital in Europe, and several maintenance and storage organizations.

Kaiserslautern is no place to be bored, whether visitor or resident. A walk through the fussganger (the downtown pedestrian shopping area) reveals a myriad of sights, smells and sounds that show the international flavor of the city. Passersby are treated to free concerts from street musicians of all nationalities playing everything from guitars and flutes, to harps and trumpets. Artists copy the works of the great Renaissance masters on the sidewalks with chalk. The scents of German, French, Greek and Italian food mingle in the air, making one's mouth water.

Although Kaiserslautern doesn't have the massive indoor shopping malls most Americans are used to, the small shops lining the fussganger offer an array of merchandise. An open-air farmer's market with fresh meats, fruits, vegetables and cut flowers is available on Tuesday and Saturday mornings, rain or shine. Most of the shopkeepers speak excellent English, but learning a few words of German can go far in making friends.

The shops close early weekday evenings and open only for a short time on Saturdays. None of the shops open Sundays, therefore, weekend shopping must be done early Saturday morning.

But even with the shops closed, there's plenty to do in downtown Kaiserslautern. The ruins of Barbarossa Castle, built in the 12th century, stand in the middle of the city, contrasting with the modern structures surrounding it. In the catacombs beneath the castle, visitors can wander through and explore centuries-old passageways and caves. A visitor standing in the castle's great hall is seemingly transported back in time to the days of medieval feasts and royal pageantry. A number of castle and palace ruins dot the countryside and are open for exploration.

Because of the many wars Kaiserslautern has endured, very few old buildings remain, but those that have survived are impressive. The three-spire Stiftskirche (church) in the city's center was built in the 13th century. St. Martin's Church, 200 meters east of the Stiftskirche, also dates back to the 13th and 14th centuries.

Culture can be found in the Pfalztheater, which offers year-round programs of operas, operettas, musicals, and plays. The Fruchthalle, formerly a food market, now serves as a festival and concert hall where chamber music groups, symphony orchestras from throughout Europe and local young artists provide a variety of music.

Driving the German autobahn (interstate system) around Kaiserslautern is an experience in itself. There's no speed limit, except surrounding the larger cities, and drivers can drive as fast as their cars can take them. Imagine getting behind the wheel of a sleek red Porsche or 450 SL Mercedes Benz sports car and accelerating down the road. The first time can be a bit traumatic for most Americans who've grown accustomed to the 55 mile an hour limit imposed in the United States.

Strict laws govern driving in Germany, and military personnel and their family members must pass an extensive test to obtain a license.

People who enjoy hiking or just walking through the woods will truly enjoy Kaiserslautern. Nature trails throughout the "Pfaelzerwald" (Palatinate Forest) surround the city. In the Karlstal, a wooded valley not far from town, hikers can climb rocks or just enjoy a moment of solitude along the bank of the creek. No matter what the season, the valley is breathtakingly beautiful.

There's something for everyone who comes to Kaiserslautern, no matter what their interest or hobby. Military people have the best of both worlds—the chance to explore a different country and culture while living in a little piece of America. People fortunate enough to be stationed in this "typical German city" will have memories to last them a life time.



The modern design of the city hall building contrasts with the old ruins of Barbarossa's castle in Kaiserslautern.

Visual communications on the high seas

by Rick Johnson

Being able to visually communicate with other fleet activities at sea and on shore requires skillful hands, keen eyesight and the capability of effective communications.

These qualifications describe Navy personnel trained in the signalman (SM) rate. "Signalmen are the hands, ears and eyes of the ship when at sea," commented Petty Officer 1st Class Larry Porter, a signalman on board the USS Iowa, Norfolk, Va. "We transmit, receive and record messages by visual means and relay them to the commanding officer and officer of the deck.

"Our main objective is visual communications," he continued. "While underway, we transmit to, and receive messages from, other ships using three basic methods of signaling."

The flag hoist method of signaling is used for tactical maneuvering. "Using combinations of our 68 flags and pennants enables us to signal one or several ships at the same time," explained Petty Officer 1st Class Donald A. Swasey Jr., a signalman instructor at the Fleet Training Center, Norfolk. "For example, we would use this method to signal another ship to make a port (left) or starboard (right) turn and the required bearing (angle) of that turn."

Every flag, or any combination of flags, has a different meaning. "We can construct thousands of messages using the flag hoist method," Swasey said.

Constructing messages using the ship's signal lights is nothing more than Morse code. Ships have two types of signaling lights. Directional signaling allows one-on-one communications with another ship. Non-directional signaling is used by one ship to communicate with several ships simultaneously.

Communicating by semaphore signaling requires the use of two hand-held flags. SMs spell out words by using different arm positions for each letter in the alphabet. "Semaphore is the quickest and most secure means of visual communication," explained Swasey, "because it's a one-on-one method used only at close range. An experienced SM can transmit more than 20 words (about 100 letters) per minute (a word is considered five letters). The maximum number of words per minute using signaling lights is about 12."

Another responsibility of the signalman is knowing the proper display of personal flags and pennants.



A signalman aboard the battleship USS Iowa uses the flag hoist method to signal other ships at sea. (Photo by Fred Klinkenberger)

"We must be proficient at rendering the proper honors during ceremonies and upon arrivals and departures of high ranking officials," he commented.

"At sea, SMs also serve as professional lookouts," Swasey said. "If another ship is sighted on the horizon, the signalman uses the 'big eyes' (large binoculars) to confirm the sighting and to make positive identification of its class. He then provides the bridge with all the pertinent information."

SMs attend the rate training school ("A" school) either in Orlando, Fla. or San Diego. During this six-week course SMs learn Morse code, semaphore positions and flag and pennant identification. "The students learn everything that deals with the signalman rate, from watch supervisor and signalman duties to navigational aids (sighting buoys, lighthouses, etc.)," Swasey explained.

"Training plays an important role for the SM," Swasey commented. "SMs must constantly keep up with the ever changing regulations and procedures in the rate. Once an SM reports on board his ship and becomes acquainted with the signal bridge, he continues to learn by on-the-job training."

Visual communication is an important function during fleet operations. "When a ship participates in operations without radio or radar communications," Swasey concluded, "all that is left is visual communication. That's when a Navy signalman becomes the 'hands, eyes and ears' for his ship."



Petty Officer Terry Bowens, a signalman aboard the amphibious assault ship USS Inchon, signals another ship by semaphore. (Photo by Rick Johnson)

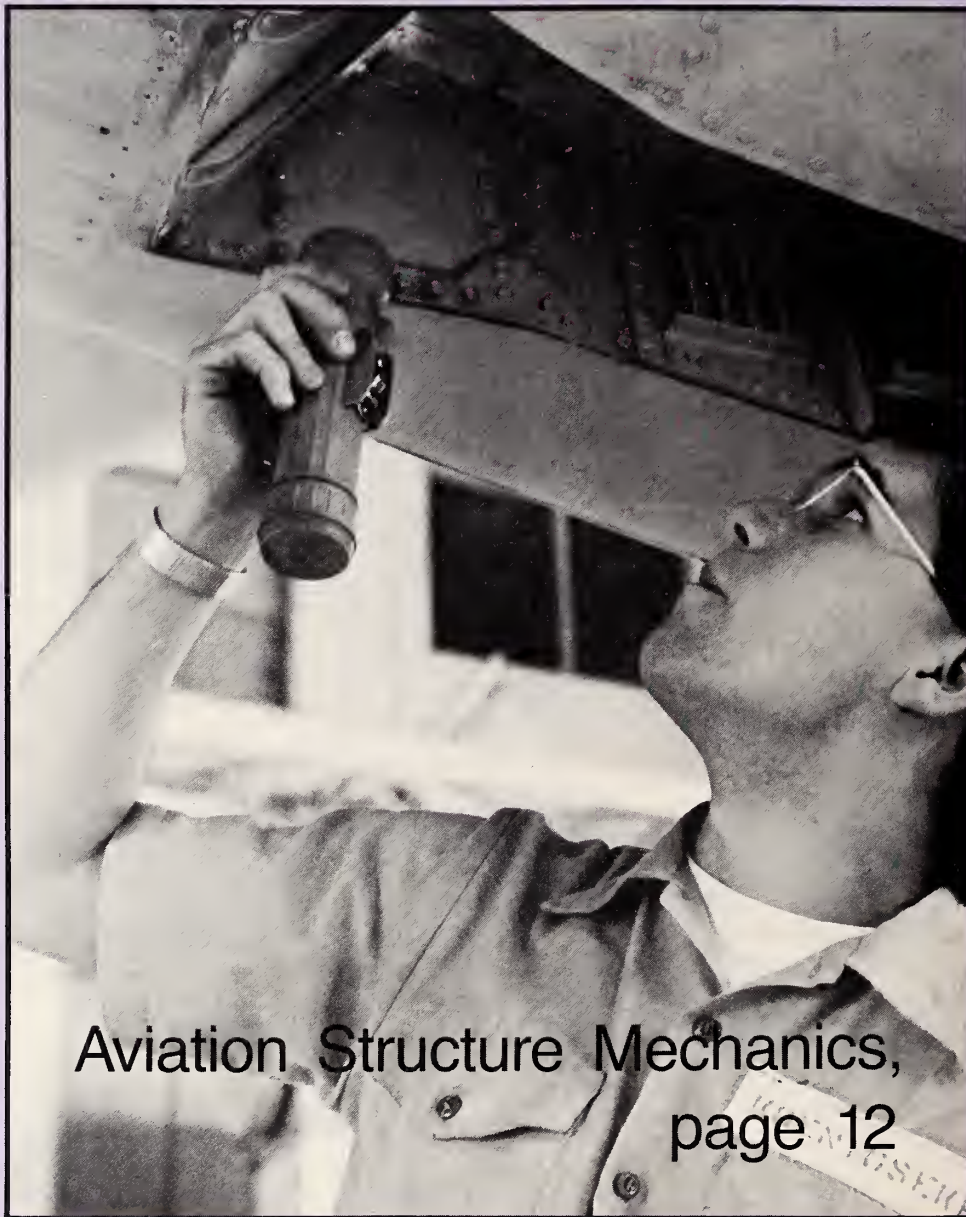


A signalman aboard the aircraft carrier USS Coral Sea flashes a message in Morse code. (Photo by Benjamin Powers)

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Aviation Structure Mechanics, page 12

For of all sad words of tongue or pen, the saddest are
these: "It might have been!"

Maude Muller

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